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Combat Crew

strategic air command

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Combat Crew

strategic air command

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ON OUR COVER

We feature the B-52 on our cover this month, and also in our emergency egress story on page 4.

Contents...

Articles

It's Your Life 4
A Vital Key 8
New Sights For SAC 12
Winter Invasion 16

Features

Big Instrument 24
Safety Rates 25
Professional Performers . . .26
Ops Hazards 28
Hall of Fame 30
Safety Screen 31

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YOUR BEST INSURANCE

COL. JESSE S. HOCKER
DIRECTOR OF SAFETY

As the new Director of Safety, I find it both enjoyable and rewarding to be writing an editorial in a magazine that is primarily directed to the combat crew member. The majority of my Air Force career has been spent as a crew member or as a direct supervisor of crew members and I am acutely aware of the challenges, demands, and satisfactions that are associated with the job.

Throughout the evolution of the SAC combat crew force, required standards of performance and the primary mission have basically remained unchanged; however, periodic changes in national and Air Force policies have, over the years, produced factors that have impacted the crew force in the areas of age, experience, stability, and training. Many of these changes have contributed to a stronger, more dynamic, and more viable Air Force that provides broader horizons for individual career development, but in some respects they have also made combat crew development more difficult.

It's no secret that today's crew members are younger and generally less experienced than those of the fifties and sixties. In the past, due to the high experience level of aircraft commanders and the infrequency of transfers, copilots didn't upgrade as fast as they do today. This was not as advantageous from a career progression point of view, but conversely, it did provide copilots the advantage of serving a longer apprenticeship behind a very experienced pilot who usually possessed considerable time in his current aircraft.

(Continued on page 16)

Emergency egress, always an item of interest because....

IT'S YOUR LIFE

CAPTAIN WILLIAM G. HECKATHORN
320 BMW, Mather AFB

One spring night, a B-52 crashed, completely destroying the aircraft. More extraordinary than the crash was that all seven crew members escaped with only minor injuries. As the radar navigator on that fateful flight, I know what we went through. With our lives on the line, correct emergency procedures were paramount that evening. I would like to present four major points which I feel contributed to our survival and could conceivably contribute to yours.

I learned many things from that experience that I wish to share with fellow flyers, regardless of the type of airplane they fly. Although much of the following applies specifically to the B-52, it can be generalized to any aircraft with a crew of one or ten.

KNOW YOUR EQUIPMENT is one of the most important keys in any crash situation. This is probably an overworked idea causing us to recall boring classes and lengthy lectures, but expertise with your equipment may make the difference between life and death. SAC has prescribed procedures for using every aircraft system and its equipment. Crew members are scheduled to study these procedures. However, how many of us really know our equipment as well as we should? How often have you napped or daydreamed during egress or life support training and missed valuable information? The purpose of these classes is to make you so familiar with your equipment that it will be a friend rather than an enemy in an emergency.

In the B-52 crash, several problems arose with the operation of our equipment. Our oxygen masks and hoses are attached to a CRU-60/P connector which must be removed from the parachute harness in order for the crew member to leave his seat with his helmet still on. After a crash such as ours where electrical power is lost, there is no impact lighting in the cockpit. Thus, in our situation, at night, where the forward section of the airplane broke away from the fuselage, it was very difficult to disconnect our CRU-60/P connectors. One crew member actually left his helmet in the wreckage rather than delay his exit, while another forcibly tore his oxygen hose in two in order to escape.

Obviously none of us had considered how the lack of light would hamper our egress and we were not as familiar with some of our equipment as we should have been. In addition to the CRU-60/P connector problem, some of us had trouble getting unstrapped from the ejection seat, parachute harness and survival kit. Again darkness and unfamiliarity contributed to the egress problem.

On the other hand, the copilot "instinctively" released his overhead escape hatch while we were rolling along the ground away from the main part of the wreckage. Thus, as soon as we stopped, he quickly made his escape out the overhead hatch. That "instinct" about our equipment is what every crew member needs in an emergency.

KNOW YOUR EMERGENCY PROCEDURES is as important as knowing your equipment. The copilot obviously knew how to release his hatch cover from the airplane, and was increasing his chance for a successful egress by making an exit available. Every aircraft is different, but we all need to study and restudy so we can react instantly and correctly in an emergency because there may be little time to stop and think.

How is your knowledge of your aircraft's emergency procedures? What do you do differently for a cockpit fire versus an engine fire? Would you hesitate in a larger aircraft such as the B-52 if you were forced to proceed with a manual bailout rather than an ejection seat egress? If you are a spare crew member riding in a seat other than

With your egress complete and towing operations underway, remember to always understand your equipment, know your emergency procedures, think ahead, and practice!

your normal one, do you review the manual bailout procedure for an additional crew member before each flight?

In the B-52, an emergency procedure concerning exit after crash landing tells which hatch to use if a crew member must leave the lower compartment and exit through the upper compartment. There is another statement saying that one can also exit through any available opening. In our crash, after we came to rest, the fuselage was laying on its left side. Once we initiated our escape, we immediately found the ladder between the lower and upper compartments. We could go "up" the ladder and out the prescribed escape hatch or "down" the ladder and out the normal exit hatch. We elected the shorter route and escaped through the lower hatch.

Similar problems were present in the upper compartment. The electronic warfare officer could not reach his overhead hatch jettison handle due to the position of the cockpit. The extra pilot occupying the gunner's seat could not remove his hatch since it was jammed into the ground. So he unstrapped and exited through the copilot's overhead escape hatch—the same route that the copilot and pilot had previously used. In this instance, thorough knowledge of the proper emergency procedure and egress route was important to those crew members.

What I feel is the third key in preparing for an emergency is one for which we are all least prepared: THINK AHEAD. Each person on a crew must think about his position and how to respond in a certain emergency. Dry run emergencies in your mind while safely on the ground to develop self-discipline. I can attest from experience that when you are in a crash, or a similar emergency, panic and fear start controlling your mind. You are disoriented. Hesitation is dangerous. An incorrect action can be even more dangerous. So by thinking how to respond in an emergency before it happens, we are mentally prepared and can prevent fear and panic from overcoming us. Don't take the attitude, "It will never happen to me," because it can.

Another example from our particular predicament shows the value of thinking ahead. Without impact lighting, the lower compartment of our B-52 was pitch black. The instructor navigator, the navigator, and myself were all lying on our left sides, completely disoriented and trying to escape. We were having some trouble unstrapping plus trouble with the CRU-60/P connectors. We would probably have been forced to remain in the lower compartment until rescued as we had lost our flashlights in the crash and ensuing roll, but fortunately I always carry a small battery rechargeable flashlight in one of the pockets of my flight suit. My preparation for some vague occurrence gave us light and greatly assisted us in getting unstrapped, loose from our seats, reoriented, and out of the wreckage. This extra precaution is not found in any manuals or regulations, but I recommend that you carry a spare flashlight that will not become separated from you. Think ahead and you will be better prepared for an emergency.

The fourth key which I would stress is one that is seldom seen outside of pilot or navigator training: PRACTICE. When was the last time your crew physically practiced an emergency procedure? Some crews actually practice emergency procedures when they have a few extra minutes. When they do, they are making an investment in their future. Perhaps we feel confident that we know what to do in all emergencies because we are familiar with our equipment. However, practice will cause you to become more proficient and smooth in your handling of emergencies. Just like golf, tennis, or any other physical activity, "Practice makes perfect."

So get together with your crew and talk about what to do during various emergencies. Then some day when you finish your preflight and have a few spare minutes, practice an emergency egress from your aircraft as rapidly as possible. Perhaps you could run through a manual bailout procedure or simulate handling an electrical problem. There are numerous situations that can continually be practiced and the familiarity from physically accomplishing these can not only save precious time during a real emergency but perhaps save your life as well.

These four recommendations for your thought are all closely related but distinctly different. Hopefully they will raise a few questions or make you feel ill prepared for an emergency. It is your life on the line whenever you are around your aircraft, be it a B-52, KC-135, FB-111, C-141, or an F-4. So remember to understand your equipment, know your emergency procedures, think ahead and practice. Think of the time spent as an investment in your future life.

A VITAL KEY

Computer support for the combat crew member

COLONEL DONALD L. EVANS
Hq SAC Data Systems

Unseen by most aircraft and missile combat crew members, a vast network of computers supports nearly every function concerned with the launch of a missile or the successful flight and landing of an aircraft. Like a huge central nervous system, data processing systems provide life support functions for SAC operational activities. In today's complex world, aircraft and missiles are not operated and maintained without massive support from automatic data processing equipment.

Command and control, communications, intelligence, planning, logistics, finance, and personnel are all heavily reliant on computers at every level—in Department of Defense activities. These systems are normally off-the-shelf, general purpose computers. Most are categorized as Third Generation which means they are constructed with mico-miniature circuits, are modularly expandable, and have internal management software that allows multiple users to process work at the same time on one computer. Jobs can be submitted at a central location or through remote terminals that can be located anywhere—even thousands of miles away.

The flow of data extends up and down the chain of command, as it has for centuries; however, today, the amount of data has greatly increased and time constraints are so tight that only computers have the capacity and speed to satisfy requirements. At the upper levels, Command and Control is integrated with Intelligence and Planning by data processing equipment called the World Wide Military Command and Control System (WWMCCS). This is primarily a means of communicating data among all of the interrelated functions of the Department of Defense. At its foundation is the status of combat crew members and their weapon systems, reported from base level.

SAC is leading the development of a crew scheduling support system, the Decision Oriented Scheduling System (DOSS), which is going to have an important impact on the daily activities of combat crew members. Although only in the prototype phase, with development and testing being conducted at the 22nd Bomb Wing, March AFB, this system shows promise for handling the hundreds of crew training, operations, and maintenance requirements. When operational, it will automatically produce all crew member scheduling through alert, ground training, and even leave.

One of the most critical and least known support activities of direct relevance to the SAC combat crew is the complex automated development of the Single Integrated Operational Plan (SIOP). From its inception at the highest national level down to the documents provided the combat wing and crew member, data automation plays a major role in SIOP development and production. Examples of computer produced products used by combat crews include the Free Launch Free Release Schedule used by bomber crews and the Target and Timing Documents used by missile crews. In addition, both bomber and tanker crews use computer generated flight plans.

The Joint Strategic Target Planning Staff (JSTPS) war planners located at SAC optimize and simulate strategic force requirements through an intimate knowledge of national military policy, and the application of strategic weaponry. War plans programming is currently accomplished on some of the most advanced and complex computer hardware in the world, located in multiple IBM and Honeywell computer complexes at HQ SAC. Each of these machines operates around-the-clock to meet the tremendous demands of the production, planning, and development that goes into the SIOP.

Many of these activities require real-time response to planner inquires. On-line remote terminals are being used in a question-and-answer mode that lets the computer's electronic "fingers" do the walking through the data files. To best support the user, many of these applications use video display console devices for instantaneous response. Although the decisions as to how the SIOP will be constructed are made by the planners, computers enable mathematical optimization within these constraints and the testing of every sortie to ensure a myriad of complex interrelationships are met. In constructing the SIOP, countless test cases are "flown" through computer programs that replicate the flight of a missile or aircraft to ensure it has enough fuel to reach the proposed target, to estimate the probability of defense penetration, etc. By tying these programs to interactive videographic consoles, planners can get a new "real time" (or immediate) response to their simulated missions. Within seconds the computer "flies" the mission and, if desired, updates the sortie file that is ultimately translated into documents that go to the field.

The SIOP is dependent on the gathering and processing of huge quantities of intelligence data. This process, by its sheer volume and complexity, is totally dependent upon computers. The traditional paper maps and charts have given way to video display devices and computer driven graphs. Data from many sources must be processed for a range of applications such as penetration aids and targeting. Intelligence gathering and SIOP production extends well beyond SAC requirements.

Twenty-four hours a day computers are at work processing intelligence data directly from airborne and other sensors. Data collected by systems, such as the SR-71, are recorded directly on computer readable tape for immediate processing. SAC is able to respond to any crisis situation effectively because computers can process data about potential adversaries so quickly.

You are aware of the ever-increasing costs of weapon systems and their operation. For aircraft crews, it limits the number of flying hours. No one looks to the time when everything but an EWO lauch will be simulation. But we need to take full advantage of the concentrated training experience to be gained in computer driven simulators. As you have seen, you are surrounded by computers and are more effective because they are so close. The computer technology has been a glamour subject of two decades and you can be confident that much of the glamour has been practically applied in support of combat crews. SAC is using computers and data automation in every way that you have ever seen described in your reading and studies. Without computer support in our complex world, information would be hopelessly out of date or in quantities far beyond human comprehension. Computer processes allow economies of force, management, and command and control.

The 1200 personnel assigned to the SAC Data Automation Single Manager, the Assistant Chief of Staff for Data Systems, are a huge investment in people that has paid off time and again. As you might expect, there are officers, enlisted, and civilians assigned. Another way of categorizing is to distinguish between operators, programmers and management /administrative personnel. Operators run the complicated hardware while programmers write, test, and improve the highly complex sets of program instructions. Over four hundred programmers, including military and civilian, are assigned. Because of the need for operational expertise and a shortage of experienced data processing personnel in this rapidly expanding field, many of the programmers and supervisors have cross-trained from another career

Several huge IBM and Honeywell computers support the intelligence processing being accomplished at SAC headquarters. (Left)

Computers store and process huge quantities of information. Shown is the tape library for a base-level computer system. (Right) field. They carry a "C" (for computer) prefix on their pilot, navigator, missile, or intelligence staff AFSCs. All of these jobs are temendously challenging and rewarding. Individuals strengthen their skills while contributing to mission-essential tasks. In addition, many SAC computer personnel eventually are reassigned to Air and Joint Staff agencies.

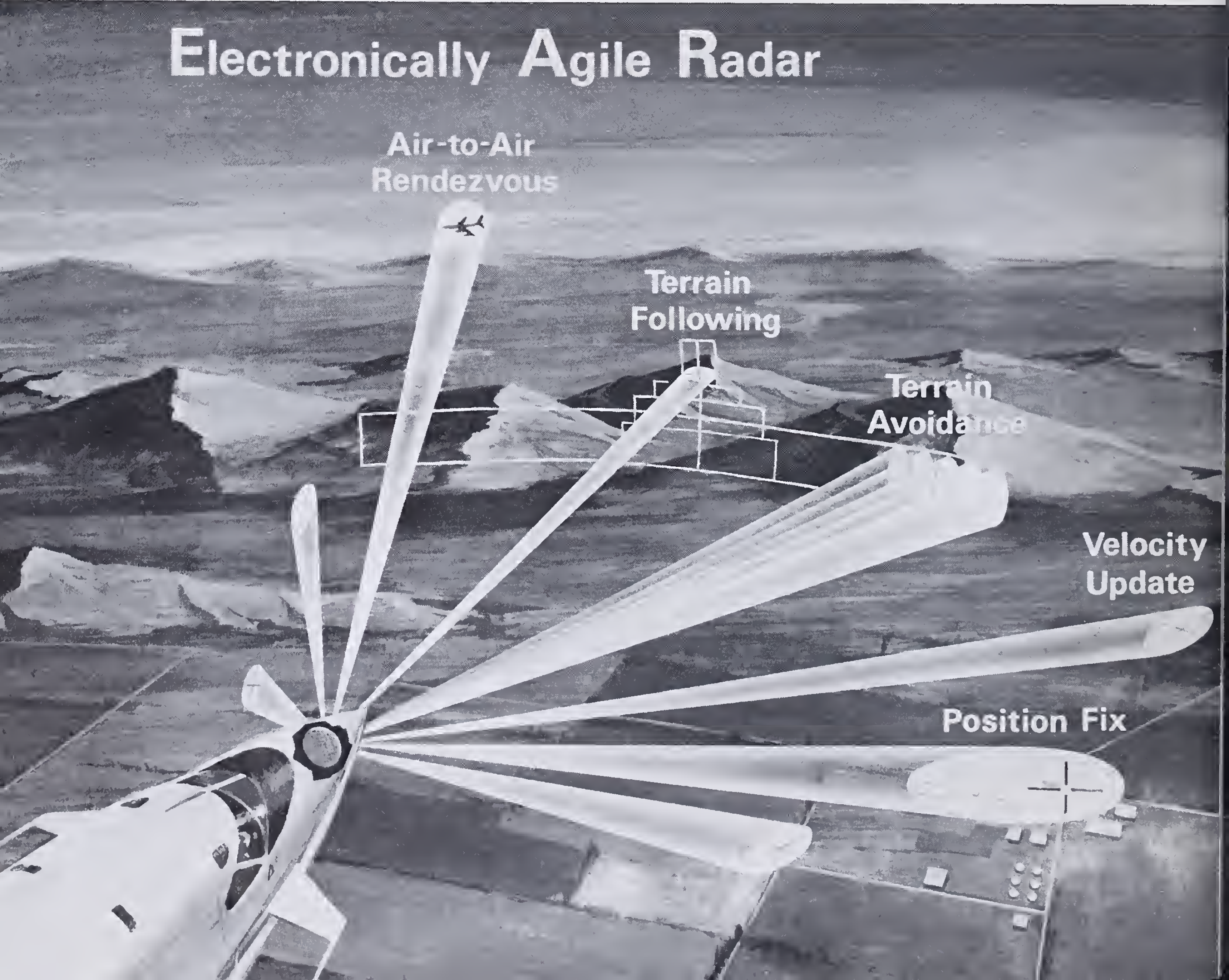
Without automated support, SAC missions would still be accomplished, but at tremendously increased costs in personnel and time, and with possible degraded levels of performance. Nearly every aspect of your work is affected by computers and you are a more productive combat crew member because of this support. More importantly, the mission in your EWO packet has been computer "flown" countless times under every conceivable set of circumstances. Hopefully, that is the only way it will ever be flown. Automated support is one of the vital keys to optimal performance and cost effectiveness in fulfilling the mission of the SAC combat crew.

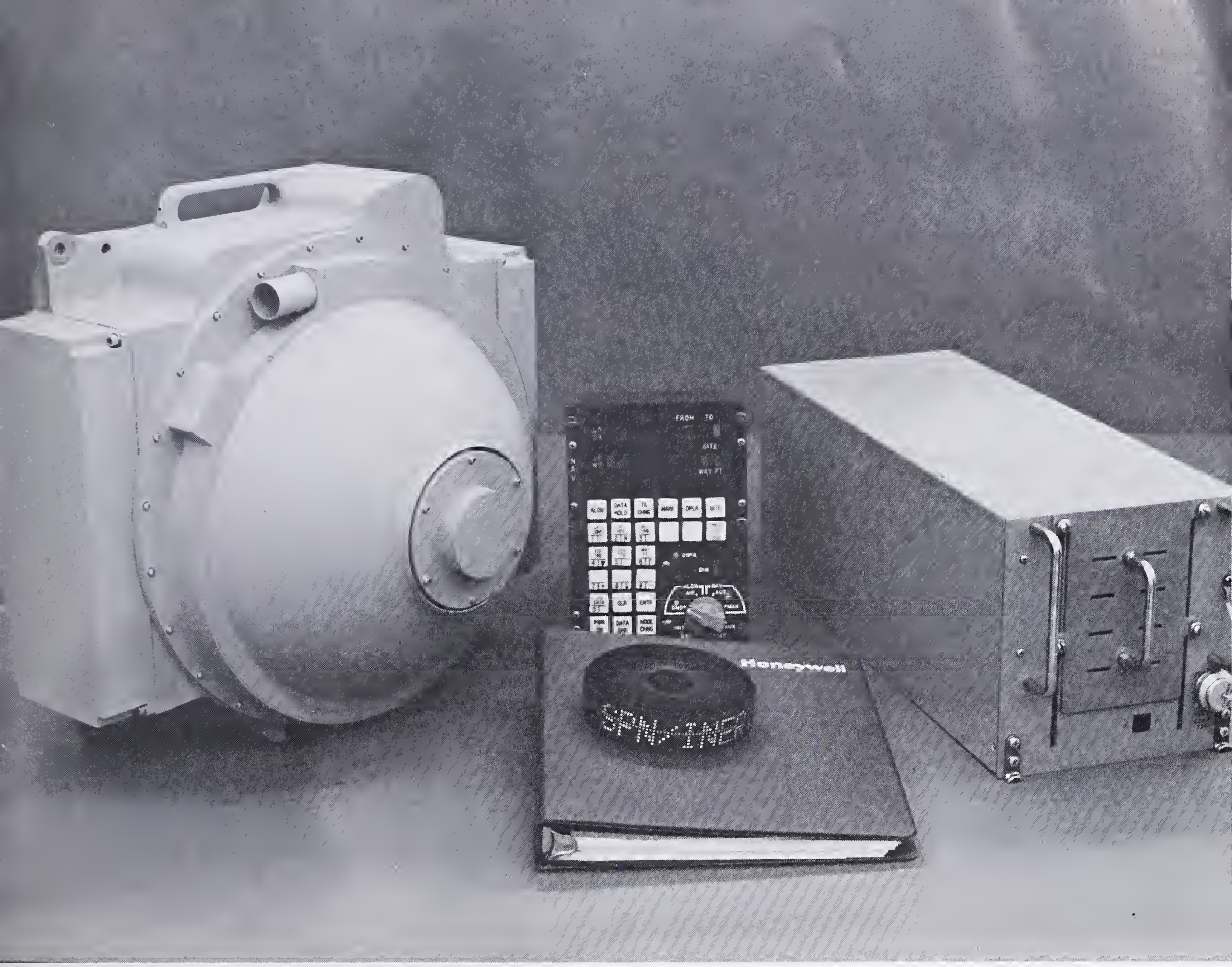
ABOUT THE AUTHOR

As the ACS for Data Systems, Colonel Evans is directly responsible for nearly 1,200 computer-oriented personnel at Hq SAC and operationally responsible for an additional 700 personnel providing a variety of computer support at 27 SAC bases. He is responsible for direct coordination with contractor personnel in areas of software development and hardware installation which presently exceed five million dollars annually. A native of Palmer, Nebraska, Colonel Evans graduated from the University of Southern California in 1949 following combat service as a B-17 waist gunner in World War II. He was commissioned in December, 1950. He is a graduate of the Industrial College of the Armed Forces.

NEW SIGHTS FOR SAC

BRIGADIER GENERAL RICHARD N. CODY
Deputy Chief of Staff for Plans, Hq. SAC



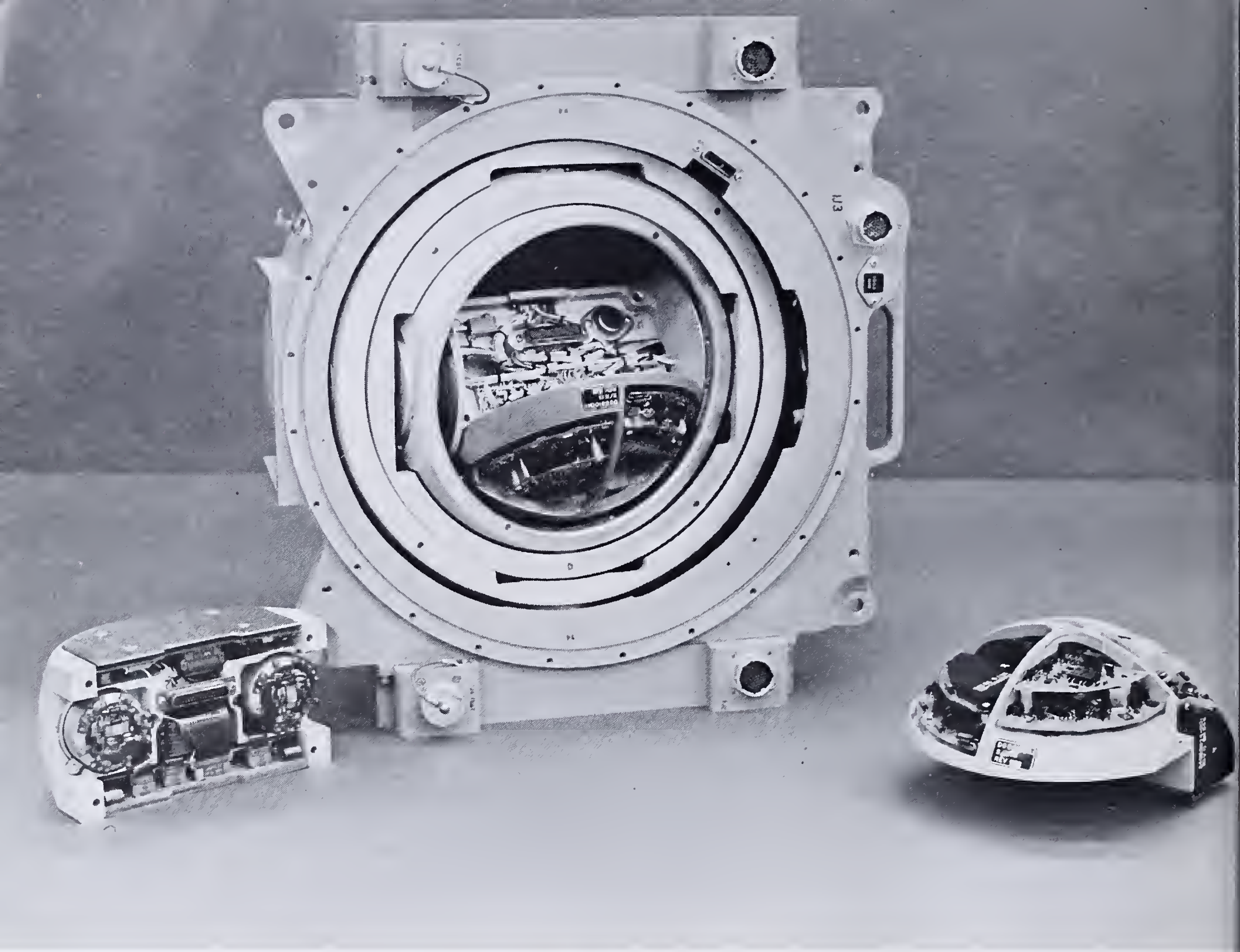


Pictured are SPN/GEANS components: Inertial Measuring Unit (IMU), Control Display Unit and Software, and the Interface Electronics Unit (IEU).

A new navigation and weapon delivery capability is on the horizon for Strategic Air Command. It's coming about because of two major technological breakthroughs which have developed in recent years—one in the area of inertial navigation and the other in multimode synthetic aperture radar techniques.

The inertial navigation development has resulted in the SPN/GEANS, an acronym for Standard Precision Navigator/Gimbaled Electrically Suspended Gyro Aircraft Navigation System. The breakthrough which makes this inertial system so significatly different is in gyro technology. Conventional gyros consist of a mass, or wheel, being spun on an axle within a frame, like the F.W. Woolworth gyroscopes which we played with as kids. Friction, mass unbalance and axle flexibility caused these early instruments to sometimes do strange things, not unlike conventional gyros today. GEANS technology, on the other hand, incorporates a hollow beryllium sphere, about the size of a golf ball, electrically suspended in a vacuum chamber and spun in excess of 600 revolutions per second. The axle flexibility problem is non-existent, beryllium has excellent mass stability characteristics and the friction problem now becomes insignificant. Heretofore unknown gyro stability is achieved.

The synthetic aperture radar development is resulting in the EAR, or Electronically Agile Radar system. Here again, the departure from the well known attack radar technology is noteworthy. Most noticeable is an antenna which looks like a honeycomb and is bolted to the forward bulkhead of the aircraft. It does not mechanically scan. Aircraft Commanders will never know by the old sound of an antenna slapping back and forth that the radar navigator is alive and well, and really concentrating on a bomb run. Beam steering and stabilization is done electri-



Two components of the Inertial Measuring Unit are the Electrostatically Supported Gyro and the Velocity Measuring Unit.

cally through hundreds of phase shifters which give the antenna the honeycomb look. Radar returns are computer processed and presented real time to the crew member in a TV like display. Picture resolution, although classified, is like your high quality home TV—except it is all weather radar!

Teamed together, these systems offer orders of magnitude improvement in many of the key navigation and weapon parameters such as unaided long term velocity and position accuracy, as well as ease of position fix taking and weapon delivery. For you navigators who've experienced the challenge of placing your cross-hairs on a hard-to-find reference point during a low level mission, you'll appreciate a system whose accuracy is such that the certainty of locating a fix point or target is as good as the basic resolution of the cross-hairs themselves. And they are small. The greatest cross-hair errors seen on a low level navigation leg will be mapping uncertainty, not system error growth.

Equally important to the accuracy which the EAR /GEANS systems can give SAC, is the ever important feature of secure and self-contained system operation. The GEANS system operating in a pure inertial mode is completely independent of the outside world. It does not radiate any signals, nor does it rely upon reception of signals transmitted from other sources such as LORAN, OMEGA, DME or GPS. The EAR uses an optimum frequency band for high and low altitude ground mapping and weather penetration with carefully controlled beam patterns to limit extraneous radiation, thus enhancing the security aspect of its operation. Both systems are hardened against nuclear effects.

Both EAR and GEANS are being developed under Air Force direction with strict application of engineering disciplines in the areas of performance, reliability, maintainability, cost, resistance to nuclear effect, and physical characteristics to meet the need of future strategic weapon systems. The "balanced design" development philosophy, pioneered by the Air Force, is applied to both of these programs. The development contractors, Honeywell, Inc. for the SPN/GEANS, and Westinghouse for EAR, have been given specific objectives and requirements in each of these areas. Through its continuing management of these programs, the Air Force, through Air Force Avionics Laboratory, Aeronautical Systems Division, and Strategic Air Command, has insured that the contractors give equal attention to each design area and not sacrifice cost in favor of performance, or vice versa. SAC maintains a hand in both developments to insure that our operational objectives will be met by these new equipments. As a result, you, the SAC combat crew member and maintenance man, should enjoy the full benefits of a truly balanced design.

So much for the approach. Now, what's the payoff? When these systems are deployed in our aircraft, such as in the avionics upgrade program for strategic weapon systems, everyone in the combat aircraft business will benefit from their use. Here are several specific examples:

1. The achievement of a true zero time reaction for taxi and takeoff will be possible. Both EAR and GEANS can be powered up and initialized while taxiing—no waiting until after being airborne to turn on the system and waiting for automatic navigation.
2. Outbound fixes will be easier to achieve. Fewer fixes are needed to align the GEANS system to achieve fullrated inertial accuracy—less than 600 feet per hour growth error.
3. Radar silent running will be available throughout a greater portion of the mission.
4. Uncertainty of locating a position fix point will be greatly reduced—to only a fraction of what's achievable today.
5. Low level navigation performance is greatly enhanced because of the insensitivity of GEANS to mission dynamics, aircraft vibration or other outside disturbances. The pinpoint accuracy of EAR in the high resolution ground mapping mode, all weather automatic terrain following and the inertial update mode for position and velocity, will result in a confident ride for crew and weapons and with reduced crew workload, even over the most difficult terrain and through stringent flight corridors. A bare minimum of acquisition time for fixtaking will now be required with the improved cross-hair cueing accuracy. During low-level penetration at a few hundred feet altitude, this is important.
6. The GEAN System will provide motion compensation for its companion EAR radar. The two, working in conjunction with automatic flight controls, will provide excellent stabilization and full integration for Low Light Level TV and Forward Looking Infra-red Sensors.
7. The final payoff comes through a highly accurate, reliable and automatic navigation and weapon system with man-in-the-loop flexibility and decision making judgment. With all of this, the man is as important now as he has ever been in making the SAC mission happen.

The EAR/GEANS systems offer a major improvement in operational capability when integrated into any aircraft weapon system. All of this could, to quote a phrase from our CINC, "Sound like a goodly dose of braggadocio." Believe me, it is real. The technology is today—and so is the requirement. Both systems have been under development for some time. We are looking for their incorporation into SAC aircraft—new sights for SAC.

ABOUT THE AUTHOR

Brigadier General Richard N. Cody is the Deputy Chief of Staff for Plans, Strategic Air Command. Prior to this assignment, he served as Deputy Chief of Staff for Personnel and became Deputy Chief of Staff for Plans on 14 July 1975. He served as Vice Commander of the 320BW at Mather AFB and assumed command of the wing in February 1972. He saw temporary duty as Vice Commander of the 17AD at U-Tapao Airfield, Thailand, from August 1972 to February 1973. He was also the airborne commander for SAC bomber forces while leading two Linebacker II missions over North Vietnam in the "Eleven-Day War" of December 1972.

BEST INSURANCE . . .

(Continued from page 3)

There were few transfers between commands, and many not only stayed in the same wing, but in many cases, on the same crew—for years. I am happy to see this policy change, but, admittedly, it developed strong crew coordination. Today, because of command exchange programs, rated supplement, professional schools, feet on the ramp, crew overages, etc, crew changes are often required which, of course, tend to cause a degree of instability. Additionally, there is the present day reduction in flying time which presents special demands in the areas of resourcefulness, innovation, and preparation.

In spite of these changes, there is one factor which has more to do with the quality of the crew force than anything else and it's just as applicable today as it was in 1960. This can basically be described as dedication. Throughout the years, I have noted that the crew members who are the most successful are the ones who work the hardest at their job. They are the ones who know their dash-1, regulations, and procedures the best; they are the ones who spend the full period in the simulator because they believe that you can't get enough practice on emergency procedures; they are the ones who fly the extra GCA even though it isn't scheduled on the MAR; they are the ones who not only sign off on the accident brief, but actually read it. These successful crew members are the ones who are always hanging around the Offensive Systems shop trying to learn just a little more; they are the ones who personally work on getting their requirements for instructor check out, rather than waiting for it to be scheduled; they are the ones who spend the full time mission planning and then cover the mission personally with emphasis on "what if." Most of all, they are the ones you can most depend upon to do the job and do it safely. For in the search to attain excellence, they have not only improved their capabilities, but also learned their limitations, and those of their equipment.

Probably more than at any time in Air Force history, the crew member of today is encouraged to improve his formal and professional education and to prepare himself for future movement to staff positions. This is excellent guidance which must not be ignored. Just make sure that in preparing yourself for the future, you do not forget the present. Webster defines professionalism "as being worthy of the high standards of a profession." You must assure that you are worthy of your present profession—which is being a combat crew member. It is your best insurance for success—and longevity.

Winter

CMSGT EUGENE W. CONLAN (ret.)
Former NCOIC SAC Ground Safety

They were dropping much faster now and beginning to build up in mass strength on the ground. The flight line runways and ramp areas were covered with them, but we were still holding our ground. We had our orders: "Give them time to build up their weight in numbers before you counterattack." Our equipment would be more effective against a predetermined mass of num-

Invasion

bers if we delayed the attack.

The wind had shifted to the east, carrying the invaders over the hangar, onto the runways. But I was confident that we were ready. The hectic two weeks we went through to reach this state of readiness would pay off.

Better call the control vehicles and team chiefs and tell them to get the attack rolling, I thought. "Driver, hand me that mike..."

We were well prepared to fight. Actually, we had been preparing for this invasion since 1 September, when the Old Man gave us two weeks to complete the staff work and put the final plans on his desk—we made that deadline, too, despite some hairy problems in getting the equipment operational and in training new replacement operators.

It began in the base commander's office. The Colonel called the briefing for eight o'clock sharp. The word had gone out to the operations officer, transportation officer, civil engineering officer, base safety officer, and myself.

On that particular September day, we were 'coffee'd" and waiting for the Colonel to arrive. He wasted no time. "I called you here today," he began, "to plan our attack against the forthcoming winter invasion. Our advance weather intelligence indicates that the initial attack is expected on our about 15 October. Let's take a look at this base layout.

"You will note," the Colonel continued, "that top priority is given to runways, taxiways, aprons and parking areas, and the routes leading to them. Other priorities will be assigned in descending order of importance, such as open-storage areas, roads, railroads, and walks. Our operational planning will involve five essential elements for successful snow removal:

- a definite and practical plan of action,
- equipment maintained in first-class condition,
- operator and assistants trained and immediately available,
- support equipment and maintenance personnel, as well as radio technicians and augmentees, readily available; night lighting, tools, and spare parts in readiness, and
- trained and experienced supervision in effect at all times to insure safe and efficient operations."

The Colonel waited for everyone to finish taking notes, then proceeded to deal out the responsibilities.

"All safety matters will be coordinated with the safety officer.

"It is CE's responsibility to supervise and coordinate all snow removal operations. He will keep us advised. Without cooperation and coordintion, we can lose the battle."

"Weather, I will accept no excuse for avoidable delays in forecasting snowstorms. Accordingly, I will expect daily, or more frequent, reports to insure that everyone here is alerted to impending storms.

"Also—you will get together and resolve the details of reporting, to include anticipated time of the storm, estimated duration, and approximate depth of forecast snow. This information is of vital importance for the effective utilization of our equipment. We plan to start the equipment rolling when the snow reaches near two inches. Not more than two to four inches of snow will be allowed to accumulate between trips of the snow removing equipment on runways designated for emergency use of aircraft. This means that we need all the equipment we can get. If necessary, we may have to contract additional equipment.

"Ops, tell your people to keep a sharp lookout on runway conditions. We want to be sure that pilots can see the runway center lines from the cockpit at all times. If this is impossible, use dye markers to outline the centerlines. Prevailing wind conditions will need close watching in order to notify snow removing crews in time to move equipment as needed. We cannot afford to let the snow buildup get ahead of us. If we get up to our hips in snow, we're out of business. It's up to everyone here to see that we stay in business. You are all professionals in your specialities, and I expect maximum support from you. However, we all get a little rusty on things we haven't done for nine months. I strongly suggest that all of you read up on the appropriate sections of AFM 91-14 that deals with snow removal, and get current on all command and local snow removal, regulations and supplements.

"This will be your first combined responsibility, and any questions you have on what's to be done will be handled by civil engineering. I'll expect your complete staff work in my office by the 15th of September. Channel all your requests for help through the CE shop. That's all, gentlemen, see you on the 15th."

Our first move was to get copies of AFM 91-14. I had a copy and a complete file of command and base regs, with supplements, in my office. To get the show on the road, I called a meeting for 1300 to hand out extra copies of AFM 91-14 and related publications.

The staff was to meet again on the 7th to iron out our combined efforts, making a supreme attempt to eliminate the possibility of Murphy's Law sneaking in, before presentation to the Colonel on the 15th. Arrangements were made to have our final meeting on the 14th, to be sure that we had knocked off the rough edges. Everyone agreed that we had work to do.

To honcho that whole thing correctly, I would have to get busy on Operation Snow Removal, now. I called transportation about the condition of our snow removal equipment and the availability of general-type vehicles. They reported that a 60-day supply of snow removal equipment spare parts was on hand, and that the mechanics had mounted snow plow underframes on trucks to supplement the special equipment for snow removal. They earmarked enough dump trucks to handle a blizzard, if necessary. Plenty of sand was available for ballast, and installation

of tow cables on various trucks for emergency use was being expedited.

The weeks of planning and preparation had paid off. The base was well prepared to fight.

The most serious problem was the shortage of experienced operators to handle the snow removal equipment. Personnel gave a fix on three replacements who should have been assigned the previous week. Not knowing their experience, we were afraid lead time might be too short to train them. I said that I would check into this and call back. Meanwhile, I contacted our roads and grounds superintendent, asking him to have a crew survey the base for general road conditions, insuring that all holes, ditches, and ruts were repaired, and to identify hazards and obstructions which could cause damage to our snow plows.

The Super said that he should post suitable markers on obstructions, using reflecting devices or luminous paint. The ditches, gutters, culverts, and catch basins were clear for drainage. He had a crew on the flight line, now, assembling the markers and night-lighting equipment to be used around refueling pits. I asked him to assign a crew to put up the snow fences before the ground was frozen hard, placing them from 75 to 100 feet on the windward side of roadways or areas to be protected, and starting first with the runway. I then called the NCO in charge of the operation and instructed him to select team leaders and sufficient personnel for each team to provide operation and repair services for round-the-clock snow removal operation. I reminded him to include vehicle maintenance mechanics on the team to insure maintenance capability.

The team leaders were to establish schedules and a roster of personnel so that operational duties could be performed in 8-hour shifts, if necessary. This roster would include: name, make, model, and type of equipment operated; home address (or barracks room number); barracks, home or nearest telephone contact; police department precinct (where applicable); and car registration number. A copy of these schedules would

be posted well in advance, with each team member being furnished a copy for complete coordination in assembling members of the team.

In my haste to get started, I had forgotten to look at AFM 91-14. I was a little hazy on the cleared widths for the use of blowers. A quick look at the estimates shown in Para. 8-5, gave me the clue I needed. I marked this for further references, since I didn't know the volume of snow to expect. Further reading revealed that I would have to arrange the snow plows in units and groups to simplify coordination of snow removal with the control tower. I studied the grouping methods illustrated in ATCH 6, 7, 8, as well as the use of various kinds of snow removal equipment, and tabbed them for ready reference.

I got on the horn again and called the supply section to determine if we had sufficient salt, sand, and minimum size Nr. 4 US Standard sieve designation abrasives on hand. We had enough sand and salt, I was told, but the abrasives were in short supply and on order. They agreed to follow up on the requisition, since it was desirable that stockpiles be placed in readily accessible areas by the 15th of September. The motor pool driver training instructor obtained the names of students who had prior experience in snow removal equipment, and earmarked them as a possible reserve in the event qualified replacement operators didn't arrive in time.

At lunch I reviewed some of the items to be discussed at the "group think" session that was scheduled for 1300. Better check AFM 91-14 again. By the time the meeting was due to start, I had decided to establish a plan of operation in each area. This would get everyone into the act, since it would require control and coordination by all responsible officers to integrate the operation into a workable whole. The fire marshal and the security police commander were invited to our meeting. We felt that they should be informed as to what we were going to do in the way of fire protection and traffic control, and perhaps get a little free assistance in the way of ideas, people and equipment. Every little bit helps.

I brought the layout of the installation with me and had it set up on the table when the group filed in. I covered a few of the points stressed by the C.O. for the benefit of the new members, then went into my pitch. Our aim was to establish our priorities for each area, methods of clearing pavements, runways, ramps and fire lanes, and final snow disposal areas. After the smoke cleared away, we agreed that first priority should be reserved for the in-the-wind runways and access taxiways thereto. And the front of all hangars. Fire lanes were to be kept clear at all times, with copies of the plans furnished to the weather, operations, safety, and transportation officers, to include the fire marshal, security police officer, and all participating supervisory personnel.

We agreed to start snow removal operations when the snow level reached two inches. We would be prepared to cope with icy conditions by insuring that sufficient personnel, equipment, and material were available to operate on a 24-hour basis. The safety officer suggested that first sergeants be alerted to have personnel stand by in the event that blizzard conditions became apparent, and that sufficient hand shovels be available. We had planned to concentrate snow removal equipment on the airfield and to organize the routing so that access roads to and from runways and fire lanes were kept clear. The primary and secondary roads in housing and administrative areas were to receive next priority. The equipment was then to be shifted to lower priority areas, but only after removal operations in top priority and primary areas had been completed.

Spreading large amounts of salt and chemicals on runways for ice control would foul up jet engines, so we weren't planning to use sand, salt, or abrasives on runways unless it became absolutely necessary; also, if possible, we would flush it away just as soon as conditions permitted. We would not allow residual snow banks to become a hazard to air or vehicular traffic. We would remove the snow from overruns for a distance of 500 feet from the end of the runway and insure that no snow was deposited in the cleared area. The area would then be identified with dark-colored material.

The fire marshal volunteered to monitor snow removal operations and utilize his vehicle radio facilities to relay information, while keeping his channel open for fire calls. Traffic control was assured by the security police officer that his people would be placed on a standby status during snow alerts. The safety officer suggested that consideration be given to releasing personnel from work at stated intervals. This would keep the traffic flow to a minimum during snow removal operations on primary roads.

Our next meeting would be held on the 7th. We would firm up all plans and be ready for the final wrapup on the 14th. Then we would present our finished product to the Colonel the following day. The main problem, at this point, was snow removal equipment and operators. It was a cinch that no snow would be removed without them. A checklist was needed to insure that my part of the plan was laid out properly. This I prepared as follows, using the question method:

- Are pavements and roads in good repair? (Should be; roads were resurfaced this spring—check anyway.)
- Are policies in effect regarding snow removal? (Check files to see if they're up to date.)
- Are slopes and shoulders inspected after or during bad weather? (Check this. Erosion sets in; hence, slide problems.)
- Are there any open pits or drains that will require barricades, markers, or night lighting? Are the fire hydrants marked and kept clear? (Inspect and check.)
- Are markers available and set up on obstructions, level with road surfaces, trenches, etc? (Survey this whole problem of holes, obstructions, and markers. Coordinate with roads and grounds section.)
- Are vehicles in good operating condition? Operators qualified and in sufficient number? (Still have that operator replacement problem to solve. Keep a close check on this.)
- Are barriers, lanterns, blinker lights, and warning flags available or in place, at time and place required? (Will check this when I survey the section.)
- Are pavements, roads, taxiways, ramps, and runways free of debris and equipment? (Will keep sweepers busy on a daily schedule. Have maintenance people keep the flight line vehicle roads and area clear of ground support equipment at all times.)
- Coordinating layout, traffic control, planning for snow removal, and communications method complete?

After spending the remainder of the week checking with all concerned to determine the progress being made on their assignments, the plan began to take shape.

The transportation officer reported that he was holding orientation meetings with his operators, reminding them to avoid "peeling" the concrete off of curbs when operating their snow removal equipment. He planned to run a few practice tests on the equipment to insure that the operators and equipment were ready. The selection of dump trucks operators had been accomplished. The driver training instructor had identified three airmen who had civilian experience in operating road equipment. The transition to snow removal equipment would be made easier for them if we needed them as replacements.

Civil engineering equipment operators assigned to snow removal activities would be scheduled to attend the transportation officer's orientation meetings, and would furnish assistance in checking out operators. Our heavy equipment section would also shake down the one-way, high-speed plows and roto-wing and roto-blade equipment for a final check on their condition. All equipment needing maintenance would be given priority in the vehicle maintenance shop. We checked to see if there was any equipment that could not be repaired in time for the first expected snow, so that arrangements could be made for contracting out for additional equipment.

A local equipment contractor was alerted to the possibility of our hiring equipment. It was planned to run this request through channels and give him a final decision on when and how many pieces of equipment we might require.

The next problem was communications. Plans were made to utilize radio-equipped vehicles stationed at various points throughout the base with team chiefs assigned as controllers. That meant certain vehicles would be set aside for this purpose. The air police and fire marshal could be in on this act.

My command post was to be a radio-equipped pickup with driver. I would patrol the ramps and runway areas, our number one priority. We also agreed that the appropriate code for radio communication would be "Snow." This would keep the channels alerted to our operation and, we hoped, clear. The weather officer made arrangements to have a weather recording made for daily forecasting.

Additional weather information was to be furnished the members of this group on a priority basis when the weather thickened and snow was certain. We agreed that the Colonel could help us by requesting all squadron commanders to furnish personnel if we had any abnormal equipment breakdowns and had to resort to using hand shovels. At the close of the session, all concerned were reminded to get their plans in by Monday, the 11th, so they could be typed in final form for presentation to the C.O.

I made a hurried call to the contractor, canceling the equipment alert and tore up my paperwork request. Planning to identify all hazardous conditions and get the loose ends tied up this week, I called the roads and grounds project NCOIC, requesting he join me in a tour of the base and fill me in on what he had accomplished.

The NCOIC arrived with problems. "It doesn't look like we are going to get the abrasives in time, and I'm short a team member who departed on emergency leave."

Abrasives would be no real problem, since we could substitute with sand if necessary. I advised the sergeant to obtain additional sand to replace the abrasive, and told him to get a replacement from the squadron.

We toured the base, utilizing the checklist to identify the trouble spots and areas that needed attention. After leaving a crew to clean up the deficiencies, I accompanied the NCOIC to a meeting with his team chiefs and team members. They were reminded that we were concerned not only with removing snow efficiently and promptly, but in removing it **safely.** All members were briefed on safe operating procedures and the importance of preserving life and property. We did not want the snow removal operation to bog down because of injuries, or damage to equipment. The sergeant handed out schedules and instructed each member to contact him if circumstances were such that they could not be available for their duty assignments. Any change in status would have to be known, so that plans or assignments could be changed in time to meet the deadline on snow removal operations.

Suddenly it was Monday morning, the 11th. Because of some mutation in my genes, I always felt pessimistic and apprehensive on Mondays. This is spite of a very active weekend, during which time no reference to snow, or ice cubes, was made to remind me of the abominable snow problem. I met Monday with foreboding and mixed feelings, then lined up two of our typists to do the consolidation of the final plan. Not being able to wait for the others to send me their plans, I phoned and told them that I would send someone over to pick them up. I would feel a lot better when the typewriters were cranked up and the final copy started flowing from the machines.

Monday, however, passed with no serious after effects, and the rest of the week went smoothly. Then it was time for the presentation. We had already received a few weather rumbles and it looked like the clouds were getting ready to manufacture some snow.

The 15th dawned cold and blustery, and we were waiting in the Colonel's office. He entered talking, and the meeting started: "Give me a copy of your snow removal plan so I can follow along with you as you give your presentation."

We each took our turn, explaining our part in the operation. The Colonel interjected a few questions from time to time which were answered to his satisfaction. He had been keeping in close touch with weather conditions, and indicated that we had a good plan and should be able to handle snow removal with a minimum of slipups. He told us that he had contacted the squadron commanders, and that we could be assured of any help needed in the way of personnel. A phone call to the commanders would suffice. We were cautioned to exercise control at all times in order to keep injuries and property damage to a minimum; and to keep the runways cleared.

Having bought our plan, he dismissed us with a parting admonition to contact him if there were any problems that we couldn't handle.

So, there I was, calling the control vehicle and team chiefs from my radio-controlled pickup CP, telling them to get the attack rolling.

After many dry runs and false alarms that had kept us on edge, Weather told us that we could expect to get a storm of considerable force. Clouds were building up in the north. Our people had been alerted since 0800. The equipment and teams were all in place . . . Heavy snow started at approximately 1130 hours and continued to build up in intensity . . . I was standing by in my control vehicle, positioned adjacent to the east-west runway ramp. The snow was beginning to drift over by the hangar doors. Crews with hand shovels were starting to clear the area around the doors. I was waiting for the snow to build up to about two inches. At this rate it shouldn't take long before it was time to get the plows rolling. Weather came through the wire with a report that the wind had shifted to the east, carrying snow over the runway area. The tower reported that drifts were evident around the runway lights . . .

This is it, I thought, as I asked the driver for the mike . . . "Code SNOW . . . all control vehicles and team chiefs instruct your operators to start the plows to rolling on the runways . . . keep your channels open for further instructions . . . Ten Four."

BIG INSTRUMENT

CAPTAIN STEPHEN E. SMABY
Instrument Division, 1st Combat Evaluation Group
Barksdale AFB, LA.

ENROUTE DESCENT

A radar monitored enroute descent can be an easy and safe method to transition from the enroute structure to a final approach. You are relieved of the requirement to proceed point to point, use "proceed direct" procedures, maneuver prior to penetration, maintain a course inbound, or keep track of the next altitude restriction. Instead, the ground controller tells you which way to turn and how far to descend. In fact, SACM 55-3 states that it is the optimum procedure when followed by a radar monitored ILS approach. However, like every other "good deal" there are some pitfalls. Through a complete understanding of the enroute descent and good crew discipline and coordination, these pitfalls can be avoided.

Even though the penetration is directed by a ground controller, a thorough review should be completed during mission planning and prior to starting the penetration. Make this review even more thorough than the review of a published approach, since the enroute descent is not necessarily flown along published courses with published minimum altitudes. Even though the controller has obstructions marked on his radar scope, the pilot is not relieved of the responsibility to assure terrain clearance. In fact, recently, a controller issued clearance for descent to the wrong aircraft resulting in a major aircraft accident and the needless loss of lives. For this reason you and your navigator(s) should develop procedures to monitor terrain clearance during the enroute descent; utilizing terrain features on maps and aircraft radar, using navigation aids in the airfield vicinity, etc. Ensure all crew members are aware of their responsibilities during the descent; e.g., monitoring all radio transmissions, aircraft position and altitude, etc.

In preparing for the approach you will want to complete as much of the descent checklist as possible prior to starting down, in order to devote your attention to the actual descent. Clearly establish with ATC how you will terminate the descent (PAR, ILS, TACAN final, etc.). Prior to descent the controller will issue instructions containing; (1) the type of approach to expect, (2) when to expect radar vectors to the final approach course, and (3) current weather when it is below 1000 feet or the highest circling minimums, whichever, is higher, or when the visibility is less than three miles.

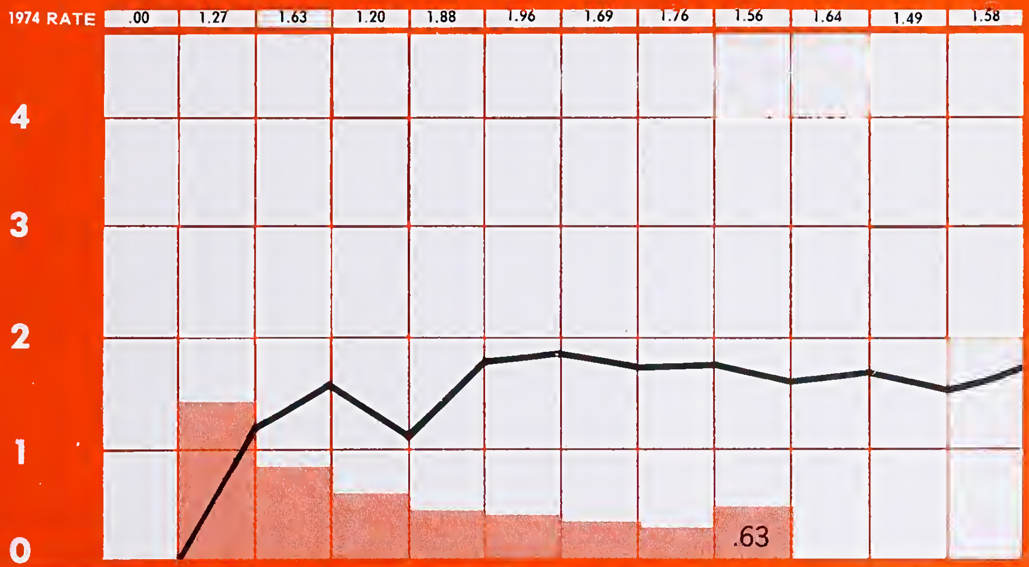
If you lose communications during an enroute descent, the situation can be very confusing unless you are prepared. Except when you are VMC or have received specific lost communications instructions, you will proceed, in accordance with FLIP procedures, to the IAF that can be used for an approach and execute the published approach. Therefore, you should review the published penetration and approach before descent, and if you are expecting bad weather coordinate lost communication instructions with ATC. Be aware that AFM 51-37 requires that lost communication instructions be coordinated when the enroute descent is to a radar final approach.

Now that you are prepared for the enroute descent, when do you start down? There really is no hard and fast rule on when to begin descent. It depends on the type of clearance received and the type of descent desired. The controller will issue descent clearance not later than a point determined by adding 10 to the first two digits of your altitude (at 35,000, 35 + 10 = 45 nm start descent point). In this case you are expected to descend at 4000-6000 fpm. No matter where you start your descent be certain you have adequate time to lose the required altitude and to configure your aircraft for final approach. If you do not, advise the controller and request additional vectors, published holding, or a procedure turn at the FAF.

As you can see, it takes detailed mission planning and crew discussion to be prepared to fly an enroute descent. The time to resolve misunderstandings and develop crew coordination is not during the penetration. Once you and your crew are prepared, through careful planning, you will find that the enroute descent can be leisurely, well-paced, and afford a safe transition to an instrument final approach.

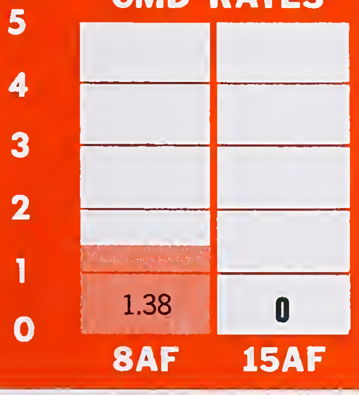
1975 Flying Safety Rate

★ SAC MAJOR ACCIDENT RATE (PER 100,000 FLYING HRS)



ACCIDENTS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1974	0	1	1	0	2	1	0	1	0	1	0	1
1975	0	1	0	0	0	0	0	0	1			

1975 SUBORDINATE CMD RATES



ACCIDENT STATUS

FB-111	FEB 75
B-52G	SEP 75

LEGEND ⁀ =1974 RATE

PROFESSIONAL PERFORMERS

Individuals selected for these pages as SAC's top professional performers of the month are chosen from nominations made by all SAC units. Selection is made only after all nominations have been carefully screened and those chosen meet the highest standards of excellence as outlined in SACR 127-2.

Flying Crew

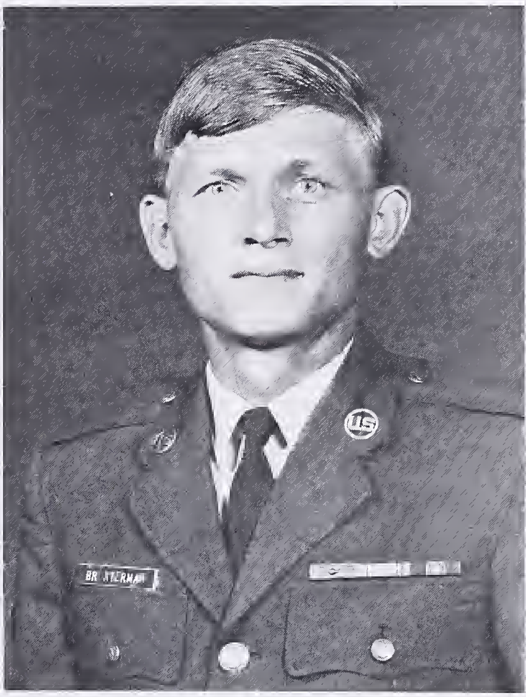
The mission was routine until approximately one hour and forty minutes after takeoff. The crew was performing a night celestial navigation leg at FL 390 when number one engine oil pressure began to fluctuate. The throttle was retarded to idle, but the fluctuations continued and the engine was shut down in accordance with Dash-One procedures.

The aircraft was unable to maintain desired airspeed at FL 390 on three engines, thus descent was initiated to FL 350. With numerous thunderstorms in the area and the radar inoperative, clearance was obtained to proceed direct to home station.

The crew elected to fly an enroute descent to the ILS utilizing GCA backup. At approximately eight miles on ILS final, the ILS equipment information became unreliable and pilot transitioned to GCA. At approximately six miles out on GCA final, the aircraft received a bird strike directly forward of the pilot's pitot tube. Both COMPAR warning lights illuminated, the pilot's radio altimeter became inoperative, and the pilot's airspeed indicator rolled back momentarily but corrected itself. During the inflight emergency, Crew R-109, 11 AREFS, Altus AFB; displayed exceptional professional performance. Their prompt analysis of emergencies, sound judgment and crew coordination prevented the loss of an aircraft. Crew members include: Captain Louis E. Duggan, pilot; 1/Lt Timothy A. Cox, copilot; 2/Lt Samuel L. Roach, navigator; and Sgt Larry Dunagan, boom operator.

PROFESSIONAL PERFORMERS

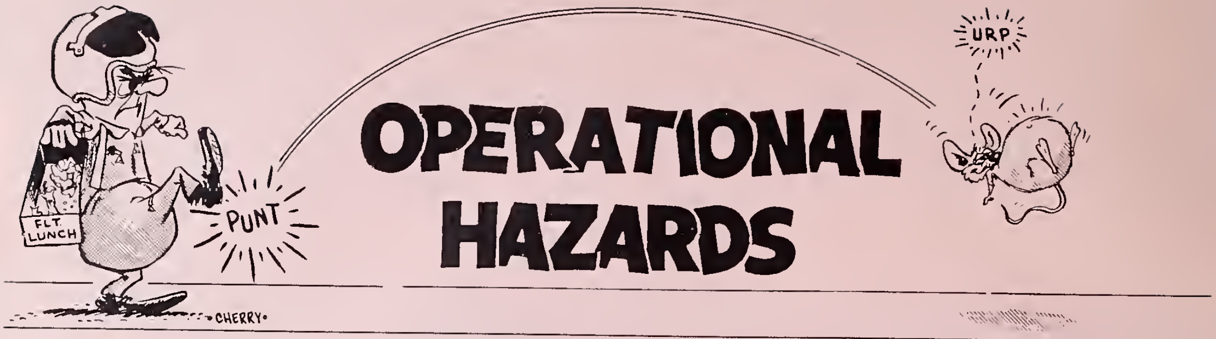
TITAN Crew E-150, 308 SMW, Little Rock AFB: MCCC 1/Lt Roger B. Graves, DMCCC 2/Lt Norman B. Genung, MSAT SSgt Carl W. Carpenter, and MFT A1C John W. McDowell.



MAINTENANCE MAN: Sergeant Lyle H. Broxterman, 384 Air Refueling Wing, McConnell AFB has been selected as SAC Maintenance Man of the Month.

MINUTEMAN Crew S-193, 341 SMW, Malmstrom AFB: MCCC Capt Ronald C. Williams, and DMCCC 1/Lt Stephen C. Bell.

OPERATIONAL HAZARDS



In a recent B-52 incident while cruising at FL350 on autopilot, the copilot's IFR autopilot release button was depressed. The servo switch and altitude hold switch moved to *out*, but the autopilot remained engaged. Placing the master switch *off* disengaged the autopilot, but now binding or feeling of pitch feedback in the controls was felt by the pilot.

In tracking this one down, several discrepancies in the system were discovered:

- two control cables were found to be below the proper tension;
- the pilot's control column to quadrant force push rod (aft force link) was installed with a bolt that was too long;
- a bent pin in the connecting plug of the pitch electronic control unit sending faulty pitch signals to the flight control system.

These discrepancies were discovered over a three-flight sequence prior to solving the feedback problem. Hang in there, troops, those gremlins can be tracked down!

Several recent B-52 incidents and a minor accident resulted in blown tires when the antiskid switch was turned off even though the antiskid system was operating normally. In the event of an abort, and the brake system is operating properly, leave the antiskid switch on. Turning the switch off and then applying brakes at high speeds is nearly certain to cause the wheels to lock, blow tires, and seriously reduce braking effectiveness.

The WHEEL BRAKE SYSTEM FAILURE checklist is primarily designed for loss of braking during taxi. It is also used for quite a different situation when throttles are selectively closed for emergency high speed stops. In this case, it is most desirable to begin the checklist with the closing of throttles.

A new Operational Supplement to the B-52 Flight Manuals better explains the reason for turning the antiskid switch to off under certain conditions. Read it and understand it so that your response fits the emergency.

HALL OF FAME

TACTICAL FLYING

OVER SIXTEEN YEARS

916 AREFS, Travis	Sep '59

OVER FIFTEEN YEARS

97 BMW, Blytheville	Mar '60
410 BMW, K. I. Sawyer	Oct '60
19 BMW, Robins	Oct '60

OVER THIRTEEN YEARS

11 AREFS, Altus	Feb '62
301 AREFW, Rickenbacker	Jul '62
96 BMW, Dyess	Aug '62
449 BMW, Kincheloe	Aug '62

OVER TEN YEARS

320 BMW, Mather	Jul '65

OVER EIGHT YEARS

92 BMW, Fairchild	Feb '67
55 SRW, Offutt	Aug '67
2 BMW, Barksdale	Aug '67

OVER SEVEN YEARS

319 BMW, Grand Forks	Dec '67
22 BMW, March	Feb '68

OVER SIX YEARS

5 BMW, Minot	Feb '69
95 SW, Goose	May '69
6 SW, Eielson	Jul '69
42 BMW, Loring	Oct '69

OVER FIVE YEARS

93 BMW, Castle	Nov '69
28 BMW, Ellsworth	May '70

ICBM

OVER ELEVEN YEARS

381 SMW, McConnell	Nov '63
90 SMW, F. E. Warren	July '64
1 STRAD, Vandenberg	Sep '64

OVER TEN YEARS

308 SMW, Little Rock	Aug '65

To gain listing in the Hall of Fame, a SAC unit must be accident-free for 48 months.

SAC Safety Screen

The SAC Safety Screen is an honor roll of SAC's most professional crews. To gain listing on the Screen, crew members must be nominated by their unit commanders and meet high selection criteria of experience in their aircraft or missile system *IAW SACR 127-2.*

19BMW, Robins Crew S-102: P Capt John A Pence, CP Capt Joseph W Baker, N 1/Lt Glenn C Easterly, BO MSgt David S Gibson

19BMW, Robins Crew R-22: AC Capt Kenneth R Morgan, CP 1/Lt Alexander J Marchand, RN Capt Steven M Parker, N 1/Lt Noel Justus, EW 1/Lt Theodore N Karoglu, AG MSgt Joseph L Packey

97BMW, Blytheville Crew E-117: P Capt James T Hostetler, CP 2/Lt Philip Gartner, N 1/Lt David M Burroughs, BO SSgt Michael L Paynter

97BMW, Blytheville Crew E-124: P Capt Eddie Collins, CP 2/Lt Gary M Spangler, N 1/Lt Rufus L Forrest, BO TSgt Vaughn A Nichols

97BMW, Blytheville Crew R-17: P Capt George J Seiler, CP 1/Lt Vernon E Hodges, RN 1/Lt Philip M Ray, N 1/Lt Walton T Lindsay, EWO 1/Lt George L White III, FCO SSgt James W Pettit

97BMW, Blytheville Crew E-11: P Capt David A Thibodeau, CP Capt Elton M Hartzler, CP 1/Lt Ronald A Menees, RN Capt Terrence E O'Brien, N 1/Lt Dennis C Banker, EWO 1/Lt John W Carver, FCO Sgt Michael J Scheall

379BMW, Wurtsmith Crew R-06: FP Capt James G Powell, CP Capt Mark S Heilmann, RN Capt Thomas C Bills, NN 1/Lt Charles L Cornwall, NE Capt Donald G Barnett, AG Sgt Ronald K Stonum

68BMW, Seymour Johnson Crew R-104: P Capt Wayne L Riley, CPX 1/Lt Thomas L Miller, CPY 1/Lt George C Wall III, NN 1/Lt Stephen A Youngman, BO A1C Joel C Lewis

376SW, Kadena Crew E-02: FP Capt Donald C Guillot, CP 1/Lt Clifford B Carter, IN Maj Robert D Harrop, NN Maj Bruce H Heimark, IE Capt Charles L Richardson, NE Capt Arthur D Niemoller

28BMW, Ellsworth Crew R-22: P Capt William C Rose, CP 1/Lt Daniel M Ramcevish, RN 1/Lt Walter J Donegan, NN 2/Lt Danny L Wilson, EW 2/Lt David L McNeely, AG A1C James K Lange

93BMW, Castle Crew S-106: IP Capt Jon E Mickley, IP Capt Stetson J Orchard, IN Capt Thomas M Graham, IS MSgt James T Stacy

319BMW, Grand Forks Crew S-01: P Capt Peter Coughlan, CP 1/Lt Bruce C Finley Jr, CP 1/Lt Wayne A Lutz, RN Capt Edward P Laird, NN 1/Lt Timothy H O'Neill, EW Capt Darrel R Hanson, AG TSgt Dennis J O'Brien

320BMW, Mather Crew E-24: P Capt Oscar L Olson, CP 1/Lt Kenneth D Smith, RN Capt Thomas D Garic, NN 1/Lt Jay M Tappan, EW 1/Lt Clark S Ince, AG SSgt Joseph J Thompson

456BMW, Beale Crew E-117: P Capt Marvin D Alexander, CP 1/Lt Robert L Boat, NN 1/Lt Phillip L Hyland, BO A1C Jimmie R Fox

916AREFS, Travis Crew R-110: P Capt John L Glass, CP 1/Lt Wolfgang E K Gesch, NN 2/Lt Marian Spurgeon, BO SSgt Michael G Dunn

44SMW, Ellsworth Crew S-010: MCCC Capt Jerrald A Miller, DMCCC 1/Lt Bruce A Bennett

90SMW, F E Warren Crew E-198: MCCC Maj David W Vaughn, DMCCC 2/Lt Clinton D Lemasters Jr

91SMW, Minot Crew R-002: MCCC Capt Gregory D Moser, DMCCC 2/Lt Barry R Hess

351SMW, Whiteman Crew E-003: MCCC Capt Stanley R Marks II, DMCCC 2/Lt Daniel M Littley Jr

381SMW, McConnell Crew R-082: MCCC Capt Russell D Rickeard, DMCCC 2/Lt John F Murphy Jr, MSAT Sgt Jack T Boswell, MFT A1C Vernard R Cross

390SMW, Davis-Monthan Crew R-023: MCCC 1/Lt James R Bradley, DMCCC 1/Lt James M Spain, MSAT A1C David S Peterson, MFT Sgt Charles R Pate

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HEY...

You—the reader, the crewmember, the maintenance specialist, the commander or supervisor—by your contributions make Combat Crew magazine. Of course, some technical material comes from equipment manufacturers, or from specialists in a particular field. Other inputs can only come from a specific event such as Olympic Arena. Still, the best articles will always be from where it's happening—in the field—and by those that make it happen you—the readers!

Most of the bylines on the pages of Combat Crew are people in SAC who show by what they write and photgraph that they understand the importance of their jobs and their own unit mission.

Of all human factors none is more important than the esteem in which a man holds his job. Crewing and maintaining strategic weapons systems are interesting, challenging jobs that place critical demands and heavy responsibilities on individuals of all ranks and specialties. When an article reflects this attitude, its professional stature and reader appeal cannot help but be enhanced. This does not mean that we are hesitant to acknowledge the hazard of human error. Facing up to failures is the first step in effective corrective action.

As an author, you are most convincing and effective when writing about a subject you know well. The best and most interesting articles often document a personal experience. You don't have to be a Hemingway to make a worthwhile contribution. Presentation of a vivid personal experience will carry your story. The staff of Combat Crew magazine will apply a bit of editorial polish if necessary. Don't hesitate to include personal details or local color that promote the reader's feeling of being there. Details such as what you saw, what you heard, or what thoughts ran through your mind at a critical moment, make a story more believable and easier for the reader to identify with. An editorial article about a subject which is very familiar, and about which you feel strongly, can also be highly effective.

Pictures are important in the dissemination of information—particularly in a magazine. Obtaining effective photographs is largely a matter of knowing what you want and going after it systematically. Decide what you want to show before calling the photographer, and prebrief the subjects as well as the cameraman. If people are involved, try to have them doing something that will make the shot look natural. Use black and white film.

Combat Crew magazine is an important part of the Strategic Air Command image. Your people, your equipment, your unit, and your mission are also part of that image and worthy of coverage in the copies that go to our readers throughout the Strategic Air Command. Our readers want to hear from you.